

**WHAT'S NEW IN SAFE DRINKING WATER?**

By Dave Leland, PE

Summer is here, the legislature is adjourned (hopefully), and the new requirements and programs of the 1996 federal Safe Drinking Water Act (SDWA) are really starting to get underway. So, it's a good time for an update on the most pressing and interesting topics - **in particular those most likely to affect you, the public water supplier.**

Consumer Confidence Reports

**All community water systems must mail their first annual Consumer Confidence Report to their water users by October 19!** This is the first actual requirement of water suppliers under the new SDWA. It is a big job - **DO NOT SAVE IT FOR THE LAST MINUTE!** See the Fall, 1998, PIPELINE for details. Help is available. An electronic report template is available from the Oregon Association of Water Utilities for \$10 (free to members) - call (503) 873-8353. An on-line template called "CCR Builder" is available on the Internet from the American Water Works Association in Denver for \$75; call (303) 794-7711. **Recall that you must submit one copy of your report to us by the October deadline, and send us a signed certification letter by January 19, 2000, stating how the report was prepared and distributed to users.** Questions? Call Mike Patterson in our office at (503) 731-4381.

Drinking Water State Revolving Loan Fund

The loan fund (DWSRF) is up and operating! In partnership with the Oregon Economic Development Department, we are now actively loaning funds for safe drinking water projects. About \$6M in loans are in place for Bandon, Gold Beach, Mitchell, Talent, Warrenton, Youngs River-Lewis and Clark Water District, and Glendale. Another 9 applications are pending (\$7M total), and 10 are in preparation (\$11M total). So far, the first two allocations of federal funds have been awarded to Oregon, making a total of \$25M available for projects, with more on the way in future years. **Remember that to apply for a loan, you must first identify your project for the Project Priority List by submitting a "Letter of Interest".** The higher the health benefit of your project, the higher it scores on the priority list, and the sooner it can be funded. Questions? Call Dave Phelps in our office at (503) 731-4010.

1999 Legislature - Operator Certification

A major objective in the legislative session was to align our water system operator certification requirements with recently finalized EPA national guidelines. States must demonstrate that their certification programs meet the EPA guidelines by February, 2001, or suffer a 20% reduction in their annual Drinking Water State Revolving Loan Fund allocation. These guidelines require state certification of operators of all community and  
*(continued on page 6)*

Drinking Water Video Now Available!

The drinking water program recently completed a 25-minute video on the basic responsibilities of public water suppliers. The video is professionally produced and provides an easy-to-understand overview with a minimum of technical jargon. Accompanying the video is a 60-page handbook with more detailed information. Program staff have been using this video as part of our Water System Training Course presentations. The video briefly explains the following responsibilities of water suppliers:

- *Routinely take water samples*
- *Always report test results to the Division*
- *If something is wrong, take corrective action*
- *Notify water users when test results are above MCLs*
- *Notify water users when required tests are not conducted*
- *Keep operating and maintenance records for review during inspections*
- *Maintain a pressure of at least 20 PSI on all connections at all times*
- *Follow up on water quality complaints from users*
- *Submit engineered plan for review and approval prior to construction*
- *Arrange for a certified operator to supervise water system operation*

If you would like a copy of this video, contact Diane Weis in our office at (503) 731-4010.

**Inside this issue:**

Water System Capacity Development	
Strategy for Oregon .....	2
Y2K Action Alert .....	4
First 1998 Consumer Confidence Reports	
Received .....	4
Key People Retiring .....	4
Thermal Expansion Must be Addressed	
When Requiring Premise Isolation .....	5
Water Systems in the News .....	5
Cross Connection Update .....	6
Training Calendar .....	8

## WATER SYSTEM CAPACITY DEVELOPMENT STRATEGY FOR OREGON

By Chris L. Hughes, P.E.

“Water system capacity” is the ability of the water system to plan for, achieve, and maintain compliance with the applicable drinking water standards. “Water system capacity” **does not mean** how much water is produced or sold by the water system. There are three components of water system capacity.

**Technical Capacity** The water system is structurally sound and is able to consistently produce safe and abundant drinking water. The issues for consideration in this category are water source construction and protection, water treatment facility and treatment performance standards, water source and distribution system capacity, distribution facility construction and system leakage, engineering drawings (including master plans), and water quality monitoring and compliance.

**Managerial Capacity** The water system is operated and managed positively, there is good communication on all levels, and the administrators are supportive of water system operations and issues. The issues for consideration in this category are operator certification, organizational structure and communication, water system policies and programs, engineering and attorney services, record keeping, and public communication.

**Financial Capacity** The money generated is sufficient to provide for the proper operation and maintenance of the water system and to plan for future improvements. The issues for consideration in this category are rate structure, indebtedness, budget and financial reports, and capital improvements plans.

**Application** The water system capacity program currently applies to all community and non-community water systems which apply for construction loans through the State Revolving Loan Fund. The water system capacity program will apply to all new public water systems commencing operations after October 1, 1999, and also to all existing public water systems after August, 2000.

**Why this Program is Necessary** The requirements for developing the water system capacity program is directly tied to the State Revolving Loan Fund. If Oregon does not develop an approvable program, then Oregon loses 20% of the State Revolving Loan Fund which amounts to about \$2,000,000 each year. The requirements for developing this program are not tied to Primacy for Oregon. The driving concept behind the water system capacity program is that a water system with full capacity will have few if any violations of the applicable drinking water standards and will be better able to contend with future requirements.

**History** The concept of capacity development is in its infancy in Oregon. In August, 1996, the US Congress passed the 1996 Safe Drinking Water Act which included,

among many other programs, the water system capacity program. In January, 1997, the Drinking Water Advisory Committee began the process of developing the strategy for a water system capacity program in Oregon. In October, 1997, the Drinking Water Advisory Committee and the U.S.E.P.A. Region 10 Environmental Finance Center at Boise State University developed the original water system capacity assessment tool for the Oregon State Revolving Loan Fund Program. In January, 1998, the Drinking Water Advisory Committee, with the assistance of the Environmental Finance Center, began the process of developing the Oregon strategy for existing water systems. And in May, 1999, the Report of Findings was completed and the administrative rules for new water systems commencing operations after October 1, 1999, were developed for public comment.

**Steps to Capacity Program Development** In order to develop an approvable capacity program strategy for Oregon, the following steps were required according to EPA regulations.

- 1) Procedure to identify constituencies for inclusion in discussion.
- 2) Identification of factors that encourage or impair capacity development.
- 3) Method to prioritize water systems.
- 4) How the Health Division will use authorities and resources to improve water system capacity.
- 5) How the State will measure improvements to water system capacity.

Based on discussions of the five points listed above, the Drinking Water Advisory Committee and the Environmental Finance Center produced the **Report of Findings** for consideration in the development of the water system capacity program. The Report of Findings lists 125 factors which either enhance or impair capacity development of which 34 factors were considered significant enough for further discussion. A risk matrix was also developed in order to prioritize existing water systems to determine those most in need of capacity development services.

**“Report of Findings” Recommendations** The first step, according to the Report of Findings, is a need to improve and gather data on financial and management capabilities of public water systems. The Report of Findings then lists six categories of ideas for potential program development: training, problem solving, public education, satellite management, source water assessment plan, and water system plans.

**Training** The Report of Findings recommends additional training programs be offered on all levels from beginning operators to management.

**Problem Solving** The Report of Findings recommends that the Health Division consider developing a series of guides for solving specific problems.

**Public Education** The Report of Findings recommends that the Health Division consider programs designed to educate water users with respect to drinking water issues, and linking of water users with water suppliers.

**Satellite Management** The Report of Findings recommends that the Health Division explore existing models or develop new models for local communities to use to develop partnerships and support relationships between local suppliers.

**Source Water Assessment Plan** The Report of Findings recommends that the Health Division should help water systems make use of source water assessments and local drinking water protection plans for capacity development.

**Water System Plans** The Report of Findings recommends that the Health Division develop a guidebook/self-assessment to assist water suppliers with the development of a water system plan. Plan contents: rates, budget, capital improvements, internal communications, external communications, reporting on and evaluation of operations and efficiency, job descriptions, service contracting, and other topics as identified.

**Risk Matrix for Existing Public Water Systems** The water system capacity program could have the potential to consume all available Health Division resources if capacity assessments were to be performed on all public water systems and capacity development services were then offered to those water systems found to be deficient. A risk matrix was developed to prioritize water systems for capacity assessments based on information readily available in the Health Division data base or in the water system files. Water systems can be easily evaluated according to an established point scale for low/medium/high risk and then prioritized by score. Those water

systems which score the highest points would be considered most likely to be capacity deficient and would be subject to capacity assessments. The risk criteria include health and water quality, water quality monitoring and reporting, certified operators and operations, identified sanitary hazards, source susceptibility, current master plan, and a population factor.

**Future Timeline**

**May 1999** - The Report of Findings is completed and finalized. Water system capacity rules for new water systems commencing operations after October 1, 1999 are drafted.

**May - July 1999** - The Report of Findings is shared with constituencies at various functions around Oregon for additional comments and suggestions.

**August - October 1999** - The Health Division develops capacity strategy based on the Report of Findings and additional comments received.

**October 1, 1999** - Water system capacity rules for new water systems become effective.

**November 1999 - July 2000** - Submit capacity strategy to EPA for approval, develop capacity program based on strategy and draft administrative rules if necessary.

**August 6, 2000** - Implement the water system capacity program for existing water systems.

**Your Help is Needed** Below are two questions. Please take the time to answer the questions and return your responses to the Health Division in care of Chris Hughes. The more input that the Health Division receives, the better a decision can be made on what to include as program elements in the capacity strategy for Oregon.

Chris Hughes, PE, is manager of the Drinking Water Protection and Development Unit of the Drinking Water Program

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## Report of Findings Questionnaire

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Please take a few moments to fill out the following questions relating to the Report of Findings. Your insight and suggestions are very valuable. Please return the questionnaire to the Oregon Health Division, 800 NE Oregon Street, Room 611, Portland, OR, 97232-2162 no later than **August 31, 1999**. Thank you for your participation.

1. In your opinion, which specific areas of technical, financial, managerial capacity should receive special emphasis in the creation of the capacity strategy?

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2. After reading the article in the Pipeline on Water System Capacity Development, do you have any additional ideas on how to build technical, financial, managerial capability?

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**Y2K ACTION ALERT**

From the U.S. Environmental Protection Agency  
Office of Water

EPA's Office of Water urges you to take steps to ensure that drinking water and wastewater treatment equipment with embedded computer chips, as well as computers, computerized interfaces, and security systems, fire alarms, gates and doors at your facilities will operate correctly on January 1, 2000.

Even smaller systems without computers can be vulnerable! For instance, small systems have found Y2K problems in embedded chips in equipment such as switch gears to run motors, and meter readers. If you have not already done so, you should make it a priority to check your facility for this problem, test any repairs, develop a contingency plan, and let your customers know when you are ready for Y2K. EPA has issued a Y2K civil enforcement policy to encourage responsible Y2K testing. The policy and a summary are available on the web at: <http://es.epa.gov/occa/eptdd/ocy2k.html>.

Informational materials are attached to assist you, including an article from the Association of Metropolitan Water Agencies (AMWA) web site. Although the article is directed at drinking water utilities, most of the information also applies to wastewater utilities.

State Rural Water Associations (RWAs) are offering free training for any operator. Call the EPA Safe Drinking Water Hotline at 1-800-426-4791 for assistance contacting your RWA, and for more information on Y2K. You can also check the EPA Y2K web site at: <http://www.epa.gov/year2000/ow.html>.

**FIRST 1998 CONSUMER CONFIDENCE  
REPORTS RECEIVED!**

And it's a tie! Congratulations to **Knappa Water Association** - population 1,200 (located near Astoria), and **Riverbend-Riverbank Water District** - population 210 (located near West Linn). Both of these water suppliers used the electronic report template developed by the National Rural Water Association and distributed by the Oregon Association of Water Utilities ((503) 873-8353), and found the template very helpful.

**KEY PEOPLE RETIRING**

**Jim Buckley** is retiring from Clackamas County Health Services, where he served as Manager of Environmental Health since 1980. He was actively involved in drinking water from the very beginning of the current state program, supervised the local drinking water efforts of one of Oregon's largest counties in terms of numbers of smaller water systems, and most recently served a term on the Drinking Water Advisory Committee. We note that Jim is an OSU graduate with a Masters degree in Entomology - no wonder he's been "bugging" us all these years! We wish him well!

**Ron Gross** recently retired as Public Works Director for the City of LaGrande, and was honored for 34 years of service at a dinner on April 10. During his career, Ron served on various Health Division advisory committees and was active in AWWA. He served on the Health Division Certification Committee for several years starting in 1981, and later was on the Watershed Advisory Board. Through his involvement with AWWA he worked to get the Eastern Oregon Subsection organized, including the Eastern Oregon Short School (started in 1983), and the AWWA retreat at Anthony Lakes. In recent years he served on the League of Oregon Cities Water / Wastewater Committee. Ron and his wife Betty will continue to live in the LaGrande area. Congratulations and best wishes!

**Jesse Lowman** is retiring after 23 years of managing major water districts in Washington County; first, the Metzger Water District, and most recently the Tualatin Valley Water District. Jesse is active in drinking water professional organizations, serving as the Chair of the Pacific Northwest Section-American Water Works Association in 1989-90. He was a solid contributor to the Oregon drinking water program, serving on the Drinking Water Advisory Committee in the late 1980s, and chairing the committee to write the first rules for mandatory operator certification in 1987. Jesse has the distinction of earning the first certificate under the mandatory program in May, 1988 (#1001, WD II) - (see 1989 photo below: Jesse - center, Kristine Gebbe - Oregon Health Division Administrator and Jim Boydston - Drinking Water Program Manager)! Good luck Jesse!



## THERMAL EXPANSION MUST BE ADDRESSED WHEN REQUIRING PREMISE ISOLATION

By Terry Swisher

(edited by Bonnie Waybright)

Recent evidence suggests that installation of a backflow device at residential water service connections (water meters) may create a hazard to the dwelling's piping system. The hazard is premature failure of water distribution piping caused by thermal expansion. More specifically due to alternating stresses, or thermal expansion and contraction which result in material fatigue, fracture and eventual leakage. For lack of a better term let's call this process thermal cycling. It is an issue in residential connections more than commercial and industrial connections because of several factors including the size of the piping system, volume of hot water use, incoming water temperature, use cycles and their closed condition. One and two family dwellings are particularly vulnerable to this problem. Additionally, manufactured dwellings may be of greater risk because the federal manufacturing standards they are constructed under currently do not allow for protection from the thermal cycling stresses as a part of the manufacturing process.

Water purveyors, plumbing inspectors and plumbing installers are continually working hard to ensure protection of our drinking water systems from contamination and pollution through the use of

cross-connection controls. These controls generally include installation and inspection of plumbing systems to plumbing codes upon installation and cross-connection control programs maintained by the local water purveyors on an on-going basis. Cross-connection control programs regulated by the local water purveyors include a decision making process. The process includes determining the level of hazard presented by each connection to their water distribution system and how to protect the system from that hazard. The connections determined as low level hazards are protected at the connection to the system with a double check valve assembly. The connections determined to present a high level of hazard are protected at the connection to the system with a reduced pressure principle assembly. This service connection protection is when thermal cycling becomes an issue.

A means of controlling increased pressure caused by thermal expansion is necessary for the following reasons:

As the water in a water heater rises in temperature, it will expand in volume. In a typical water distribution system, the water will expand into the water service and into the public water main or well compression tank, assuming the water is not withdrawn from the system at an outlet or connection. Allowing the heated water to expand into the water service prevents a pressure increase in the piping system. If the expansion of water is not accommodated in the piping system, dangerously high pressure can develop and cause damage to piping, components and even the water heater.

In plumbing systems where pressure reducing valves, check valves and backflow prevention devices are installed on the water service connection upstream of the water heater, the heated water will be prevented from expanding into the supply main. As a result, the building's water system pressure will increase dramatically. A water heater pressure relief valve will open and discharge. This will occur at 125-150 psi depending on the relief valve used. This means the entire water distribution system will be exposed to these higher than normal water pressures and then reduced pressures every time the water heater heats water. The effect causes excessive stress in all system components and increases the likelihood of leaks and other cycle fatigue failures. Continuous relief valve operation can shorten the life of the relief valve and create a hazard of failure. Relief valves are not designed to act as an operating control device. Proper thermal expansion control devices should be used to protect the plumbing system from damage.

Current plumbing code provisions require protection from thermal expansion when the closed system is created by the installation of a backflow device at the water supply. However, because of differences in cross-connection control programs, including varied determinations of the level of hazard for each connection, these devices may not be installed when the plumbing system is inspected by

### WATER SYSTEMS IN THE NEWS

**Falls City Completes Filtration Plant!** - Falls City, population 935, recently completed major improvements to its water system, including a slow sand filtration plant to treat water from previously unfiltered water supplies (see photo). In addition, a 600,000 gallon reservoir was built and a substantial number of aged water mains were replaced. Total cost of the project was \$4M. This work completes a compliance schedule established in 1992 - congratulations!



the plumbing inspector. When this occurs the device may be required and installed months or years later. It is extremely important for water purveyors and plumbing inspectors to work together to create uniform requirements for residential water supply connections to prevent thermal cycling damage. Notification of the potential thermal cycling problem and how to prevent it, must be made to the property owner by the water provider when a new backflow installation is required.

Terry Swisher is Chief Plumbing Inspector of the Department of Consumer & Business Services, Building Codes Division

**CROSS CONNECTION UPDATE**

By Bonnie Waybright, PE

The 1999 list of approved backflow assemblies has an addendum dated March 8, 1999. Call (503)731-4317 to request a copy.

**Ordinance Pitfalls**

Many utilities share their ordinances with each other, resulting in similar ordinances throughout the state. For the most part, this has been a good practice. Why start from scratch when so many others have already done the same work? Unfortunately, this has also spread a few problems throughout the state as well. Here are a few of the common errors the Health Division finds when reviewing ordinances:

- Dual Check with Atmospheric Vent Many ordinances include reference to this device as an acceptable means of backflow prevention. This device is not approved and should not be included in a cross connection ordinance.
- Permitting for Private Wells Some ordinances allow premises with private wells to avoid installing backflow preventers by filing a permit with the utility. A permit is not an acceptable means of backflow prevention for private wells. Private wells, as with all auxiliary water sources, are considered high hazard cross connections and require approved high hazard protection (reduced pressure backflow assembly or air gap). Installation of a backflow preventer can be avoided by abandoning the well according to the Water Resources Department requirements.
- Utility Approval for Backflow Assemblies, Installation Requirements and Grandfathering for Older Backflow Assemblies Many ordinances refer to the utility's approval for these items when the utility has requirements that are more stringent than the Health Division rules. This is acceptable when done correctly. Sometimes these requirements are written in such a way that it is not clear that the Health Division minimum requirements are being upheld. Care should be taken when phrasing such specifications to ensure that requirements less stringent than Health Division rules are not being included.

- Authority to Refuse Service 333-061-0070(1)(a)(A) requires all community water systems to have a "local ordinance or enabling authority which authorizes discontinuing water service to premises for failure to install an approved backflow device or conduct a required annual test on a backflow device". Some of the ordinances the Health Division reviews are lacking the language to meet this requirement.

This would be a good time to dig out your own ordinance and see if it has any of these problems.

Bonnie Waybright, PE, is in the Technical Services Unit of the Drinking Water Program

**What's new** *(continued from page 1)*

nontransient noncommunity public water systems. Our current statute only covers community systems and exempts from certification those operators of water systems serving fewer than 150 connections and using groundwater sources. So, in House Bill 2176, we proposed to eliminate the current exemptions and include nontransient systems (primarily schools and places of employment serving 25 or more people per day) in the requirements. In effect, operators of almost 900 small water systems in Oregon would be newly subject to state certification requirements, although the EPA guidance gives states considerable latitude to design certification requirements that are appropriate to small water systems.

Opposition to elimination of the certification exemptions surfaced quickly in the legislative session. In spite of our assurances and intentions to design a reasonable small water system operator certification program with involvement by affected water systems and organizations, and in spite of the likely future loss to Oregon of \$2M per year of loan funds for construction of safe drinking water projects, HB 2176 went forward without eliminating the current exemption provisions. **This means our operator certification program may not be approved by EPA in its current form, and we may lose a significant amount of needed financing for future water system improvements.**

**Continuing Education Requirements - This Means You!**

While small water systems are still exempted from certification, the current law and rules in place since 1989 require that their operators attend drinking water training and obtain two (2.0) Continuing Education Units (CEUs) every two years. So, if you operate a community water system, be aware of this requirement - it applies to you whether or not you are exempt from certification! **If you are currently exempt from certification requirements, we will be calling on you near the end of 1999 to demonstrate your CEUs for the past two years by mailing in copies of your course certificates.** Upcoming training courses are listed on the back of each PIPELINE newsletter. Fair warning.... Questions? Call Brian Rigwood or Mary Alvey in our office at (503) 731-4899.

## Technical Assistance

If you serve fewer than 10,000 people, and need on-site or phone help solving short-term operational problems, contact the Technical Assistance contractors recently selected by the drinking water program and already hard at work. The Oregon Association of Water Utilities ((503) 873-8353) serves water systems using groundwater, and EES Consulting (Lee Odell, (503) 223-5900) serves systems using surface water sources. **There is no charge to you for this service.** Questions? Call Mike Grimm in our office at (503) 731-4317.

## Check Your Data

Your water system violation data is posted on the Internet by the USEPA on a site called "USEPA Envirofacts". Violations of MCLs and monitoring requirements are determined by us and reported by us to USEPA, based on the lab tests and reports that you send to us. You can get to this site through our Oregon Drinking Water home page at [www.ohd.hr.state.or.us/cehs/dwp/](http://www.ohd.hr.state.or.us/cehs/dwp/). Look under "**www links**". Then you can review violation data on your system, or any other system. If something doesn't look right, first review your own water test records, then call us and we'll help you check it out. **This way, you can help us be sure that your compliance record is as accurate as possible.** Remember, compliance is everyone's job. Get your tests in, get them in on time, and we'll do our best to enter them quickly and accurately. Questions? Call Mary Alvey in our office at (503) 731-4381.

## Sanitary Surveys

In partnership with our county health departments, we are now making a concerted effort to get out in the field and take a comprehensive look at each public water system on a minimum 5-year cycle. The objective of these sanitary surveys is to spot deficiencies that cause contamination problems now or could in the future and to give you guidance on how to fix them. It's also an opportunity to meet face-to-face and resolve your regulatory issues and questions. **You'll be hearing from us when the time comes....**

## Drinking Water Protection Program

This new effort is also well underway, though a partnership with the Department of Environmental Quality. Early work is focusing on completing Source Water Assessments of public drinking water wells and surface water intakes. Over the next three years, each community, nontransient noncommunity, and transient noncommunity water supplier will receive a report with a map showing the location of the drinking water supply (wells, springs, surface water intakes), and identifying the contaminant sources within the areas of those water supplies. The report will include an assessment of how susceptible the drinking water supply is to those contaminants. **Then it's your job, with help from us and DEQ, to use the source water assessment report**

**as a tool to get your community involved in voluntary efforts to protect your drinking water.** You'll hear from us when we start work on your source water assessment. Questions? Call Dennis Nelson in our Springfield office at (541) 726-2587 (groundwater supplies), or Sheree Stewart of DEQ in Portland at (503) 229-5413 (surface water supplies).

## Capacity Development

This is a new effort, now under study and development, to improve the ability of public water systems to meet drinking water standards over the long term by improving their technical, financial, and managerial capacity (see article on page 2). The SDWA requires states to assure capacity for DWSRF loan applicants now; assure that new systems commencing operations after October 1, 1999, demonstrate capacity before beginning operation; and implement a statewide strategy by August 6, 2000 to assure capacity of existing systems. Failing to meet these deadlines results in loss of 20% of the revolving loan fund allocation each year (in addition to the 20% at risk in Operator Certification described above). **We need your help and ideas to find ways to help water systems in Oregon to improve their capacity - please give us your ideas using the enclosed questionnaire on page 3.** Questions? Call Chris Hughes in our office at (503) 731-4317.

## 1999 Legislature - Primacy

The drinking water legislation in 1999 (House Bill 2176) revised our statutory authorities to match the new SDWA and retain our primary responsibility for administering the federal USEPA drinking water standards here in Oregon, an arrangement called "Primacy". Two primacy provisions were required; raising maximum civil penalty amounts for large water systems from \$500 to \$1,000 per day of violation, and revising the definition of a "public water system" to include distribution systems consisting of "other constructed conveyances" besides pipes, such as ditches and canals. This second provision may result in some irrigation companies meeting the definition of public water systems if, in fact, any customers use the water for domestic purposes. Neither of these primacy provisions caused much of a stir, and both were approved by the Legislature.

## Stay Tuned and Stay Informed!

Well, there's a lot going on and a lot to know and keep track of for all of us. Now more than ever, it is critical to stay tuned and stay informed any way you can. Read the PIPELINE. Read and respond to letters we send you. Go to training and workshops. Join a drinking water organization, read their material and mailings, and use their websites. **Be aware of and attend to your responsibilities as a public water supplier. Don't get left behind!**

Dave Leland, PE, is Manager of the Drinking Water Program



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## TRAINING CALENDAR

### New Water Products

Tom Dozel/(800) 884-5505  
 October  
 (call for date and location)

### Cross Connection/Backflow Courses

Backflow Management Inc. (B)  
 (503) 255-1619

Clackamas Community College (C)  
 (503) 657-6958 ext. 2364

### Backflow Assembly Tester Course

Sept. 13-17 Oregon City (C)  
 Sept. 13-17 Portland (B)  
 Oct. 18-22 Bend (B)

### Water System Training Course

Oregon Health Division  
 Roberta Lindgren/(503) 731-4317

Aug. Klamath Falls

Sept. Bend

Oct. Lincoln City, McMinnville

\*dates and exact locations to be announced

PIPELINE is intended to provide useful information on technology, training, and regulatory and policy issues to those involved with the state's public water systems to improve the quality of drinking water in Oregon. PIPELINE may be copied or reproduced without permission provided credit is given.

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**IF YOU WOULD LIKE THIS IN AN ALTERNATE FORMAT, PLEASE CALL (503) 731-4010**